

WHAT IS CLAIMED IS:

1. A Session Initiation Protocol (SIP) service method comprising:
registering a private Internet Protocol (IP) address/port of a proxy in a static mapping table of a Network Address Transition (NAT), the private IP address/port for accessing the proxy from outside the NAT; and
upon messages coming to a public IP address/port of the NAT mapped to the private IP address/port, transmitting all SIP messages to the private IP address/port.
2. The method of claim 1, further comprising connecting to outside of the NAT using the public IP address/port if the proxy intends to transmit messages to the outside of the NAT.
3. The method of claim 2, wherein connecting to the outside comprises adding via headers to the SIP messages.
4. The method of claim 3, wherein connecting to the outside further comprises registering the public IP address port in parameters of the via headers.
5. The method of claim 4, wherein the public IP address/port is registered in the via headers without registering the proxy's private IP address/port in the via headers.

6. The method of claim 4, wherein connecting to the outside further comprises transmitting the messages to the outside of the NAT.

7. A Session Initiation Protocol (SIP) service method comprising:

- sending a SIP invite message from a first user agent to a first proxy registered in a static mapping table of a Network Address Translation (NAT) located within a same domain as the first user agent;
- storing multiple public access information at a Real Time Protocol (RTP) relay located outside of domains for media processing;
- changing, at the first proxy, private access information within a Session Description Protocol (SDP) message received from the first user agent to one of the multiple public access information; and
- sending the SIP invite message to a second user agent through a second proxy registered in the static mapping table of another NAT.

8. The method of claim 7, further comprising:

- sending a response message corresponding to the SIP invite message from the second user agent to the first proxy through the second proxy, the second proxy located within the same NAT as the second user agent.

9. The method of claim 8, further comprising:

modifying the private access information value within the SDP message to one of the multiple public access information stored at the RTP relay and sending the response message to the first user agent.

10. The method of claim 9, further comprising:

sending specific media to the modified public access information value within the invite message or the response message and thereby creating the NAT binding values, and mapping the created NAT binding values to the multiple public access information values that were stored at the RTP relay.

11. The method of claim 10, further comprising enabling the two user agents to transmit and receive media to and from each other using the stored public access information and the mapped NAT binding values.

12. The method of claim 11, wherein the public access information and the mapped NAT binding values are stored in the RTP relay.

13. The method of claim 10, further comprising:

upon receipt of the response message, sending an acknowledgment message from the first user agent.

14. The method of claim 13, wherein after the first user agent's receipt of the response message, the method further comprises:

storing at the RTP relay NAT source access information generated during the RTP packet's passage through the NAT, deeming the source access information as the external representation value for the first user agent's media transmission and transmitting all RTP data received from the second user agent to the source access information.

15. The method of claim 13, further comprising:

after the second user agent's transmission of the response message, transmitting the media from the second user agent, storing the NAT source access information at the RTP relay, and transmitting the RTP data received from the first user agent to the NAT source access information.

16. The method of claim 7, wherein if a media path is established between the two user agents for transmission and receipt of media stream, periodically transmitting keep alive messages in order to maintain the established binding.

17. The method of claim 7, further comprising:

if the first proxy receives a bye message from the first user agent, transmitting the bye message to the RTP relay; and

deleting binding values for all the relevant calls created at the RTP relay and thus terminating the call.

18. The method of claim 15, wherein the user agent's port for transmitting the media is the same as its port for receiving the media.
19. A Session Initiation Protocol (SIP) method comprising:
providing a private address/port of a proxy within a static mapping table; and
transmitting SIP messages to the private address/port of the proxy when messages are provided to the network.
20. The method of claim 19, further comprising connecting the network to outside of the network using a public address/port.
21. The method of claim 20, wherein connecting to the outside comprises adding via headers to the SIP messages.
22. The method of claim 21, wherein connecting to the outside further comprises registering the public IP address port in parameters of the via headers.
23. The method of claim 22, wherein the public IP address/port is registered in the via headers without registering the proxy's private IP address/port in the via headers.

24. The method of claim 22, wherein connection to the outside further comprises transmitting the messages to the outside of a Network Address Transition (NAT) of the network.

25. A Session Initiation Protocol method comprising:

- sending a SIP invite message from a first user agent to a first proxy registered in a static mapping table associated with a first domain;
- storing public access information at a Real Time Protocol relay;
- modifying a Session Description Protocol (SDP) message to include public access information; and
- sending the SIP invite message from a second proxy to a second user agent, the second proxy being registered in a static mapping table associated with a second domain.

26. The method of claim 25, further comprising:

- sending a response message corresponding to the SIP invite message from the second user agent to the first proxy through the second proxy, the second proxy located within the same NAT as the second user agent.

27. The method of claim 26, wherein modifying the SDP message comprises modifying private access information value within the SDP message to one of the multiple public access information stored at the RTP relay and sending the response message to the first user agent.

28. The method of claim 27, further comprising:
sending specific media to the modified public access information value within the invite message or the response message and thereby creating the NAT binding values, and mapping the created NAT binding values to the multiple public access information values stored at the RTP relay.

29. The method of claim 28, further comprising:
upon receipt of the response message, sending an acknowledgment message from the first user agent.